



BN-NVR / M4PoE

PoE Network Video Recorder

4Ch

QUICK START GUIDE V1.1/2014-06-30

Precautions

Precautions

Before using this device, study all of this document's tips, advice, and rules. Follow the rules strictly to ensure that your device operates at the best condition. If you install this device in someplace public, provide the message, "You have entered the area of electronic surveillance", in a noticeable area. Failure to properly use electrical products may cause fire or severe injuries. To prevent accidents, read the information below carefully.

Symbols

This document contains the following symbols. Their meanings are described accordingly.

Symbol	Description	
A DANGER	Details fatal risks that, if not avoided, can cause severe injuries or death.	
MARNING	Details moderate risks that, if not avoided, can cause minor or moderate injuries.	
A CAUTION	Details risks that may affect the product. If these are not avoided, it may lead to damage, data loss, performance deterioration, or unpredictable results.	
© [™] TIP	Provides information that, if taken to account, can save time or resolve issues.	
NOTE	Provides additional information.	



DANGER

 To prevent electric shocks, burns, or other injuries, keep the power plugs dry and clean.



WARNING

Observe the device's installation requirements accurately during installation. The
manufacturer is not responsible for device damage caused by the user's failure to
follow these requirements.

- Conform to local electrical safety standards and use power adapters that are marked with the LPS standard when installing and using this device. Otherwise, this device may be damaged.
- Use the accessories delivered with this device. The voltage must meet input voltage requirements for this device.
- If this device is installed in places with unsteady voltage, ground this device to discharge high energy levels (such as electrical surges) in order to prevent the power supply from burning out.
- When in use, ensure that no liquids flow into the device. Immediately power off the
 device and disconnect all cables if water, or any other liquid, unexpectedly flows into
 the device.
- Do not focus strong light (such as light bulbs or sunlight) on this device. Otherwise, the service life of the image sensor may be shortened.
- If this device is installed in places where lightning frequently occurs, ground the
 device to discharge high energy levels, such as lightning strikes, in order to
 prevent device damage.



CAUTION

- Avoid heavy loads, intensive shakes, and soaking to prevent damages during transportation and storage. The warranty does not cover any damage that is caused during secondary packaging and transportation after the original packaging is taken apart.
- Protect this device from dropping or significant impact. Keep the device away from magnetic field interference. Do not install the device in places with shaking surfaces or frequent rattling.
- Clean the device with a soft and dry cloth. For stubborn stains, dip the cloth into a neutral cleanser, and then gently wipe the stain away with the cloth before you dry the device.
- Do not jam or block the ventilation opening. Follow the installation instructions provided in this document when installing the device.
- Keep the device away from heat sources such as radiators, electric heaters, open flame, and other heating equipment.
- Keep the device away from places that are moist, dusty, extremely hot, extremely cold, or contain strong electric currents.
- If the device is installed outdoors, take measures to repel insects and moisture to avoid circuit board corrosion that can affect monitoring.
- Unplug the power plug if the device has been idle for a long time.
- Before unpacking, check to see if the fragile sticker is damaged. If the fragile sticker is damaged, contact the customer service or sales personnel. The manufacturer shall not be held responsible for any artificial damage to the fragile sticker

Special Announcement

After strict inspection, all complete products sold by the manufacturer are delivered along with nameplates, operation instructions, and accessories. The manufacturer shall not be held responsible for counterfeit products.

This manual will be regularly updated alongside product enhancements and software upgrades. Updated information may be added to new versions of this manual without prior notice. It is up to the user to ensure that their product stays up to date.

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1 Specifications

System Specifications					
CPU	Industrial-grade embedded CPU				
Operating system	Embedded Linux operating system				
Hard disk interface	One hard disk interface, which supports SATA2.0 and a capacity of up to 4 TB				
Network interface	One 10 Mbps/100 Mbps adaptive Ethernet interface Four PoE 10 Mbps/100 Mbps Ethernet interfaces, compliant with the IEEE802.3af standard				
Audio interface	One input interface One output interface				
Video interface One VGA output interface One VGA output interface Support for 1920×1080, 1280×720, and 1024×768 output resolution					
USB interface	Two front-facing USB2.0 interfaces				
Alarm interface One alarm input One alarm output					
Factory reset button One					
	Performance Specifications				
Network video input	Four video inputs				
Total bit rate 18 Mbps					
Video resolution					
Synchronous playback	Up to four 1080p video inputs				
Local preview	Four video inputs, support for real-time preview on a 1/4 screen and rotating video windows				
Video backup	Backup to a USB flash drive, removable hard disk, or network disk				

Others				
Operating temperature	0℃-45℃			
Operating humidity	≤ 90% (non-condensing)			
Power supply	DC 48 V/1.35 A power adapter			
Power consumption of the mainboard	\leq 6 W (excluding the hard disk)			
PoE power consumption				
Shelf size	260 mm ×175 mm ×50 mm (length ×width ×height)			
Package size	382 mm ×304 mm ×121 mm (length ×width ×height)			
Net weight	≤ 700 g (excluding the hard disk)			
Installation	nstallation Desktop or wall-mounted			



NOTE

Recording times listed above are estimations. They are not perfectly exact. Each individual product's limit will differ slightly.

2 NVR Networking

The network video recorder (NVR) has five network interfaces: one 100 Mbps network interface, and four PoE network interfaces. The four PoE network interfaces can be connected to devices within a distance of less than 100 meters.

Connections must be made via standard cables.

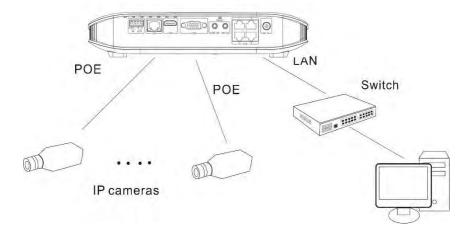
POE Network Interfaces

After IP cameras are connected to the PoE network interfaces, the NVR automatically adds the IP cameras and enables 24/7 recording.

100 Mbps Network Interface

The 100 Mbps network interface can be connected to other network devices. Figure 2-1 shows the network topology of the NVR.

Figure 2-1 Network topology of the NVR



3 Hard Disk

3.1 Precautions



CAUTION

- Formatting will clear all video data on the hard disk. Use this function only when necessary.
- Be sure to uninstall the hard disk before removing it from the NVR during runtime.
 Otherwise, the hard disk may be damaged, or data may be lost.
- The NVR must be connected to a stable power supply during runtime. Otherwise, the hard disk may be damaged, or data may be lost.
- The maximum capacity of a single hard disk cannot exceed 4 TB.

3.2 Hard Disk Recommendation

Seagate and Western Digital hard disks, which are highly stable and inexpensive, are recommended.

3.3 Video Storage Duration

Table 3-1 Video storage duration

Maximum Hard Disk Capacity	Maximum Bit Rate	Video Storage Duration	
1 ×4 TB	18 Mbps	21 days	

Formulas for calculating the video storage duration:

Step 1 Use the following formula to calculate the storage capacity **q** (unit: Mbyte) required to record a single video per hour:

 $q = d/8 \times 3600/1024$

d indicates the bit rate (unit: Kbit/s)

Step 2 Use the following formula to calculate the video storage duration t (unit: day)

$$t = \frac{n \times w}{q \times h \times c}$$

w indicates the capacity (unit: Mbyte) of a single hard disk.

n indicates the number of disks.

h indicates the recording duration per day.

c indicates the number of video inputs of the NVR.

Table 3-2 shows examples of video storage duration (h is 24 hours).

Table 3-2 Examples of video storage duration

Hard Disk Capacity	Bit Rate	Video Count	Video Storage Duration
1×4TB	D1, 1.5Mbps	4	64 days
1×4TB	720p, 3Mbps	4	32 days
1×4TB	1080p, 4.5Mbps	4	21 days

☐ NOTE

The data listed in the preceding table is only a mathematical reference. The recording time estimate for the device is dependent on the user's use and hard disk space.

3.4 Hard Disk Installation

Take the following steps to install a hard disk:

Step 1 Unscrew the two fixing screws on the hard disk cover and remove the hard disk cover, as shown in Figure 3-1.

Figure 3-1 Unscrewing the hard disk cover



Step 2 Use the four screws included in the accessory kit to fix the hard disk to the hard disk cover, as shown in Figure 3-2.

Figure 3-2 Fixing the hard disk to the hard disk cover



Step 3 Insert the hard disk cover equipped with the hard disk into the hard disk cartridge and connect the hard disk lines to the hard disk, as shown in Figure 3-3.

Figure 3-3 Inserting the hard disk into the hard disk cartridge



Step 4 Install the hard disk cover and screw the two fixing screws back into the hard disk cover, as shown in Figure 3-4.

Figure 3-4 Restoring the hard disk cover



----End

4 Operation Instruction

4.1 Front panel

Figure 4-1 shows the front panel of the NVR and the interfaces on it. Table 4-1 shows the description of the front panel.

Figure 4-1 Front panel

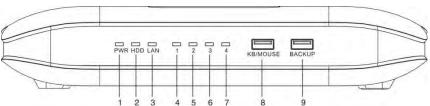


Table 4-1 Elements of the front panel

NO.	Element	Description		
		Power indicator		
1	PWR	When the NVR is operating, the PWR indicator will be on.		
		When the NVR has been shut down, the PWR indicator will be off.		
		Hard disk status indicator		
2 HDD		The HDD indicator flashes when data is read from or written to the hard disk.		
3	Network LAN LED	Non-PoE network status indicator		
3	Network EAN EED	This indicator flashes when data is transmitted.		
4/5/6/7	PoE indicator	PoE network status indicator		
4/3/0//	TOE indicator	This indicator flashes when data is transmitted.		
8	KB/MOUSE	Supports connection to a USB mouse and keyboard.		
9	BACKUP Supports connection to a USB flash drive or			

NO.	Element	Description
		USB removable hard disk.

4.2 Rear panel

Figure 4-2 shows the rear panel of the NVR and the interfaces on it. Table 4-2 shows the description of the rear panel.

Figure 4-2 Rear panel

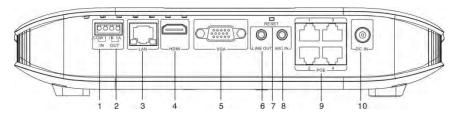


Table 4-2 Elements of the real panel

NO.	Name	Description		
1	Alarm input	One alarm input (Boolean value)		
2	Alarm output	One alarm output (Boolean value)		
3	LAN	RJ45 10 Mbps/100 Mbps adaptive Ethernet interface		
4	HDMI	Video output interfece		
5	VGA	Video output interface		
6	LINE OUT	Audio output		
7	RESET	Factory reset button		
8	MIC IN	MIC input		
9	PoE network interface	Four PoE network interfaces		
10	DC power interface Connected to an external power adapter			

4.3 Startup

Before starting the NVR, ensure that the NVR is connected to a stable power supply and power adapter.

Once the NVR is connected to a stable power supply, it will start automatically after an initial activation.



CAUTION

Before starting the NVR, ensure that the NVR is properly connected to a power supply, and that a monitor is connected to the HDMI or VGA interface of the NVR.

When the NVR is started, the power indicator will light up. The NVR will then initiate a self-test, and will display the test results on the screen. The startup process takes about 2 minutes.

When all the hardware has been inspected, the self-test will stay on-screen. You can click **continue** or **shutdown** in the lower right corner of the screen. If you click **continue**, the NVR enters the login screen.



The hard disk of the NVR must be provided by the user. Hard disk detection is performed during startup. If the detection fails, possible causes include:

- The hard disk is new and unformatted. In this case, format the hard disk based on chapter 5's "Quick Setup"
- The hard disk is formatted, but the file system is inconsistent with the one supported by the NVR.
- The hard disk is damaged.

4.4 Shutdown



CAUTION

- Do not disconnect the power supply when the system prompts "Shutting down".
- The NVR may fail to operate normally when a power supply abnormality occurs.
 Damage to the NVR is possible in extreme situations. To avoid this, the user is advised to use a regulated power supply.

To shut down the NVR, click in the upper right corner of the main screen. The shutdown screen is displayed, as shown in Figure 4-3.

Figure 4-3 Shutdown interface



Enter the correct password and click **Shutdown**. When authentication is successful, a confirmation prompt will display. Click **Yes**.

----End

If the manual mode is selected, click to synchronize the times of the IP cameras. If the auto mode is selected, the NVR synchronizes the times of the IP cameras automatically.

2. Authentication accounts of managed cameras



CAUTION

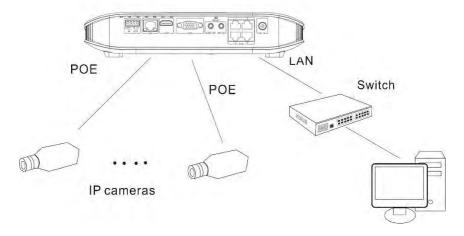
Only successfully authenticated cameras can be used normally. Before adding a camera, add its authentication account and password the list.

To log in to an IP camera, you need to enter the correct authentication account. Only successfully authenticated IP cameras can be managed.

- The system provides the default account admin and default password admin. You to add an IP camera authentication account.
- To delete an IP camera authentication account, select the account and click.

- 3. NVR network configuration
- The default IP address of the NVR is: 192.168.0.121.
- You can enable automatic IP address acquisition and set the IP address, subnet mask, default gateway, and DNS address of the NVR. The network connection status and speed are displayed in real time. For details about the parameters, see section 8.1.5 "Network" of the Network Video Recorder (NVR) User Guide. Figure 5-2 shows the network topology of the NVR.

Figure 5-2 Network topology of the NVR



4. Hard disk management



CAUTION

- Formatting will clear all video data on the hard disk. Use this function only when necessary.
- Be sure to uninstall the hard disk before removing it from the NVR during runtime; otherwise, the hard disk may be damaged or data may be lost.
- The NVR must be connected to a stable power supply during runtime; otherwise, the hard disk may be damaged or data may be lost.

You can manage the hard disk of the NVR as follows:

- Format the hard disk. Click **Format**. In the displayed dialog box, click **Yes**.
- Install or uninstall the hard disk. Before removing a hard disk from the NVR, shut down the NVR first and then uninstall the hard disk.
- Check the status of the hard disk (normal, abnormal, unformatted, and unavailable).
- Check the used space and total space of the hard disk.

5. Camera deletion

To remove managed cameras, click in the camera list, select the cameras to be removed, and click **Delete Camera**.

6. IP camera setup

You can view the status of an IP camera and set the name, IP address, recording policy, stream parameter, and motion detection parameter of the IP camera.

- Viewing the status of an IP camera
 - The camera status may be Online, Offline, and Incorrect account. For an online IP camera, click on the camera status was be online.
- Changing the name of an IP camera
 - Enter a name in the **Name** column
- Setting a recording policy

Click the recording policy to be modified. The **Recording Policy Configuration** dialog box is displayed. For how to set a recording policy, see section 8.1.7 "Recording" of the *Network Video Recorder (NVR) User Guide*.

Setting a stream

Click the stream to be modified. The **Stream** dialog box is displayed, as shown in Figure 5-3.

Stream Stream ID 1 * Name stream1 Video Encode Type H.264 High Profile * G711_ALAW + Audio Encode Type 1920x1080 ▼ Resolution Frame Rate(fps) - 25 I Frame Interval (Unit: second) 2* Bit Rate Type CBR ▼ Bit Rate (kbps)(500-12000) 8000 Apply to All Devices 011 Cancel OK

Figure 5-3 Stream dialog box

Set stream parameters, select **On** for **Apply to All Devices**, and click **Apply**. The parameter settings are applied to all IP cameras that have the same resolution as the configured resolution.

• Setting a motion detection alarm

Click the motion detection information to be modified. The **Motion Alarm** dialog box is displayed. Set the arming time and detection zone when the motion detection alarm function is enabled.

----End

6 Web Access

The NVR is embedded with a Flash-enabled web server that supports several mainstream browsers: Internet Explorer, Chrome, Firefox, and Safari. Operations such as quick setup, live preview, video playback, alarm search, NVR configuration, and camera configuration can be performed via the web.

The default IP address of the NVR is 192.168.0.121. To access the NVR, enter the IP address of the NVR in the address bar of a web browser, for example, http://192.168.0.121.



CAUTION

- Before accessing the NVR via the web, ensure that the network connection is correct and smooth.
- Identify the interface used in the network connection and enter the corresponding IP address in the address bar of your browser.
- Step 1 Enter the IP address of the NVR in the address bar of a web browser, then press **Enter**. The web-based login screen of the NVR will display, as shown in Figure 6-1.

Figure 6-1 Login screen of the NVR



Enter the correct user name and password. The main screen of the NVR will then display itself, as shown in Figure 6-2.

- The superuser and its password are both admin (case-sensitive). Change the password
 after the first login.
- If incorrect passwords are entered more than three times within 1 hour, the user is locked
 out and restricted from logging in. Only the administrator can unlock the user. For details
 about unlocking, see section 8.1.9 "Account Management" of the Network Video Recorder
 (NVR) User Guide.
- The superuser admin cannot be locked.

Figure 6-2 Main screen of the NVR



Step 2 The main screen provides several video functions; live view, video playback, alarm search, quick setup, camera configuration, and NVR configuration. For details, see the *Network Video Recorder (NVR) User Guide*.

----End

7_{FAQ}

1. Why is the NVR self-test screen frozen?

Use the methods below to fix the problem:

Method 1: Check whether the NVR is equipped with a hard disk.

Method 2: Check whether the NVR is equipped with an unformatted hard disk.

Method 3: Check whether the hard disk is damaged.

The NVR requires a stable and formatted hard disk that the hardware supports.

If a hard disk is not required, Click **continue** in the lower right corner of the screen to resume the startup process.

2. Why does the screen display incomplete information or is skewed?

Use the following methods below to fix the problem:

Method 1: Use the monitor's automatic adjustment function.

Method 2: Click **Adjust** on the login screen. The **Monitor Setup** screen is displayed. For operation details, see chapter 4 "Operation Instruction" of the *Network Video Recorder (NVR) User Guide*.

3. Why are no images displayed on the monitor?

Use the following methods below to fix the problem:

Method 1: Check the power supply of the monitor.

Method 2: Check whether the monitor is connected to the NVR correctly.

Method 3: Restart the NVR.

Method 4: Check whether the monitor supports the default resolution (1024×768) of the NVR

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Hazardous Substance Declaration

	Hazardous Substance or Element					
Component	Plumbum (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (Cr6+)	Polybrominated Biphenyls (PBB)	Polybrominated Diphenyl Ethers (PBDE)
Structural part	×	0	0	0	0	0
Board/circuit module	×	0	0	0	0	0
Cable connector	×	0	0	0	0	0
Accessories	×	0	0	0	0	0

o: indicates that the concentration of the hazardous substance in all homogeneous substances of the component is within the limit specified in SJ/T 11363-2006 Requirements for Concentration Limits for Certain Hazardous Substances in Electronic Information Products.

101-600-0074-01

[×] indicates that the concentration of the hazardous substance in at least one homogeneous substance of the component exceeds the limit specified in SJ/T 11363-2006 Requirements for Concentration Limits for Certain Hazardous Substances in Electronic Information Products.